UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

April 10, 2003

Mr. Keith Forman
Naval Facilities Engineering Command
Southwest Division
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8571

Mr. Chein Kao
Department of Toxics Substances Control
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

Ms. Julie Menack
California Regional Water Quality Control Board
1515 Clay Street, #1400
Oakland, CA 94612

RE: USEPA Radiological Scanner Van Report, Hunters Point Shipyard, March 2003

Dear Mr. Forman, Mr. Kao and Ms. Menack:

The United States Environmental Protection Agency (USEPA) has completed its report summarizing the results of the radiological scanner van survey of Hunters Point Shipyard (HPS) which took place September 9 through 12, 2002. The report is included as an attachment to this letter. USEPA Region 9 Superfund staff requested USEPA Radiation And Indoor Environments National Laboratory (R&IE) conduct the scanner van survey of September 9 through 12, 2002 as a final radiation confirmation survey for Parcel A. The scan covered all navigable roads on and immediately adjacent to Parcel A. In addition to Parcel A, areas of Parcel B, Parcel C, and minor portions of Parcels D and E were scanned. (A map of the scanned areas is included in the subject report.) The scan covered only minor portions of Parcels D and E due to the inaccessibility of navigable roads and ongoing radiation investigation and/or remediation. All of the anomalies detected during the scan were attributable to natural occurring sources at levels consistent with what would normally be found in the environment. Based on the scan results, none of the areas which were scanned warrant further radiological investigation.

Background and Summary of Scanner Van Results

USEPA R&IE's radiological scanner van is the most recent tool that USEPA has used at HPS to confirm Navy cleanup of radiological contamination and to ensure protection of human health and the environment. The scanner van moves at slow speed and provides a unique means

of surveying an extensive area for gamma[1] emitting radionuclides. Any time that an unexplained anomaly is detected, the van stops and the scanner operator performs a gamma ray energy spectrum at that location. The operator then compares the spectrum to a computer gamma energies data base and identifies the radionuclide(s) responsible for the anomaly.

This scanner van system, while extremely efficient, does have limitations. The scanner van's ability to detect radiation anomalies is not easily quantified and is influenced by many factors. These factors may include: 1) the driving speed of the van which determines the amount of time the detectors have to detect a potential radiation source, 2) distance of a source away from the scanner van's detectors, 3) strength of a radiological source, 4) species of radionuclide(s), and 5) extent of shielding of a source (e.g., thickness/density of a building wall or ground surface cover such as asphalt or concrete, depth of a buried source, etc.).

As with any radiation detection system, increasing the distance of a radiation source from the detector causes a marked decrease in its detection efficiency. Closer is always better, but the size of the scanner van's detector, especially when compared to handheld radiation detection instruments, makes this system ideal for scanning over large areas to identify unusual or elevated background gamma radiation quickly and efficiently. It offers an otherwise unobtainable sense of security that nothing has been overlooked.

The purpose of the scanner van survey of HPS was to identify potential gamma radiation anomalies as a result of shipyard operations. No gamma anomalies were identified during the scan other than those attributable to what would normally be found in an unimpacted environment.

USEPA Oversight of Navy Investigation and Cleanup of Radiological Contamination at HPS

USEPA has provided oversight of Navy investigation and cleanup of HPS since USEPA placed the site on the National Priorities List in 1989. USEPA's oversight role includes ensuring that the Navy completes the investigation and cleanup of the site in accordance with the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as well as ensuring protection of human health and the environment in both the short and long term. USEPA ensures that releases of radiological contamination to the environment at HPS are fully addressed under CERCLA and has requested that the Navy cleanup radiological contamination to a level that meets our risk based preliminary remediation goals (PRGs) for radionuclides or to indistinguishable from background. USEPA Region 9 Superfund staff work very closely with the Navy to ensure the appropriate investigation and cleanup of radiological

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[1]Gamma rays are the most energetic and most penetrating electromagnetic waves of radiant energy. Like visible light and x-rays, gamma rays are weightless packets of energy called photons. They have neither a charge nor a mass and are very penetrating. One source of gamma rays in the environment is naturally occurring potassium-40. Manmade sources include plutonium-239 and cesium-137. Gamma rays can easily pass completely through the human body or be absorbed by tissue, thus constituting a radiation hazard for the entire body. Gamma rays are best blocked by dense materials such as lead or thick materials such as several feet of concrete.

contamination at HPS. Further, USEPA conducts independent radiation confirmation surveys to verify adequate investigation and cleanup.

Since the earliest stages of environmental investigation at HPS, the Navy and USEPA have focused on historical radiological operations particularly those of the former Naval Radiological Defense Laboratory (NRDL). Investigation and cleanup of radiological contamination has moved steadily forward on a separate track from the remedial investigations conducted to determine the nature and extent of chemical contamination. To date, the Navy has conducted four phases of radiological investigation and the fifth phase is ongoing. USEPA has been involved in the oversight of Navy activities throughout each of these phases. USEPA oversight has included conducting confirmation surveys to ensure that radiological contaminants are investigated, delineated, speciated and remediated in accordance with CERCLA.

USEPA's Superfund radiation technical support staff has conducted numerous radiation surveys at HPS over the last 12 years using handheld radiation detecting instruments. USEPA conducted independent soil analyses and determined that low-level radiation in soils located on the former subbase portion of Parcel B was attributable to naturally occurring radionuclides, not contamination. USEPA also conducted an analysis of the soil surrounding buried radioluminescent dials, gauges and deck markers on Parcel E and confirmed that the radium painted devices could be effectively separated and removed from soils. USEPA also recommended treatment technologies to the Navy to remove buried radium painted devices from Parcel E soils.

Next Steps

USEPA will continue to be actively involved in the oversight of the Navy's investigation and cleanup of radiological contamination at HPS. We are looking forward to receiving the Draft Final Historical Radiological Assessment (HRA) for review and comment in Fall 2003 and to performing additional radiation confirmation surveys as remediation is completed. Should you have any questions regarding the attached radiological scanner van survey, please contact me at 415-972-3013 or Steve Dean, USEPA Region 9 Superfund Technical Support Office, at 415-972-3071.

Sincerely,

Claire Trombadore
Remedial Project Manager

cc: Amy Brownell, City of SF
Lynne Brown, Restoration Advisory Board Co-chair
Lea Loizos, ARC Ecology
Deirdre Dement, CA Department of Health Services